

USSR

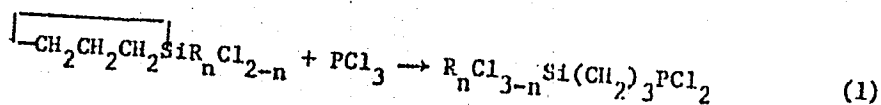
UDC 547.245+547.26'118

BUGERENKO, YE. F., PETUKHOVA, A. S., CHERNYSHEV, YE. A.

"New Method of Synthesizing Silicon-Phosphorus-Containing Compounds"

Leningrad, Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 168-172

Abstract: The high reactivity of the endocyclic silicon-carbon bond in sila-cyclobutane in the processes connected with opening the ring [K. A. Andrianov, et al., *Organomet. Chem. Rev.*, No 2, 153, 1967] predetermines the possibility of using this class of heterocycles to synthesize silicon-phosphorus-containing compounds by the scheme

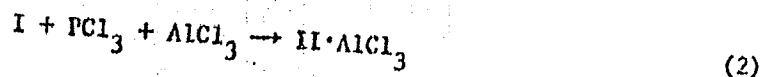


R = alkyl; n = 0, 1, 2.

II

The authors succeeded in synthesizing  $\gamma$ -alkylchlorosilylpropyldichlorophosphines (II) by scheme (1) in the presence of aluminum trichloride as the catalyst:

1/2



- 20 -

USSR

BUGERENKO, YE. F., et al., Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 168-172

Thus, it was found that silacyclobutanes and silacyclopentanes react with phosphorus trichloride in the presence of aluminum chloride with the formation of silicon-phosphorus containing compounds of the  $R_nCl_{3-n}Si(CH_2)_nKPCl_2$  type. The compounds obtained enter into reactions characteristic of both the derivatives of trivalent phosphorus (oxidation, addition of sulfur and chlorine) and for chlorosilanes. The yields, properties and analytical data on the synthesized silicon-phosphorus containing compounds are tabulated, and the experimental procedures for synthesizing them are presented.

Foundry

USSR

UDC 669.71.042.62

KUZNETSOV, V. S., YUNISOV, S. Ya., PETUKHOVA, T. A.

"Calculation of the Process of Formation of a Casting During Casting in a Roller Crystallizer"

Tr. N.-i. i Proekt. In-ta Splavov i Obrabotki Tsvet. Met. [Works of Scientific Research and Planning Institute for Alloys and Processing of Nonferrous Metals], No 35, 1971, pp 80-89, (Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G210 by the author's).

Translation: The process of formation of a thin flat casting of Al of great length in a roller crystallizer with a stable process is studied. An analytic study of the process of solidification of the casting is presented. 3 Figures; 6 Biblio. Refs.

1/2 023

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--A COMPARATIVE STUDY OF THE EFFECT OF HIGH DOSES OF  
ANTICORTICOSUPRARENAL ANTIMITOCHONDRIAL AND ANTIMICROSOMAL CYTOTOXIC  
AUTHOR--(03)--PETRUN, N.M., LITVINCHUK, N.K., SHULGINOVA, Z.I.

COUNTRY OF INFO--USSR

SOURCE--PATOLOGICHESKAYA FIZIOLOGIYA I EKSPERIMENTAL'NAYA TERAPIYA, 1970,  
VOL 14, NR 3, PP 28-31  
DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CORTICOSTEROID, BIOSYNTHESIS, INHIBITION, SELECTIVE DRUG  
EFFECT, MITOCHONDRION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3001/1929

STEP NO--UR/0396/70/014/003/0028/0031

CIRC ACCESSION NO--AP0127330

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127330

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A COMPARATIVE (IN VITRO) STUDY WAS MADE OF THE EFFECT OF HIGH DOSES (30 PER CENT OF THE VOLUME OF THE INCUBATION MEDIUM OF ANTICORTICOSUPRARENAL, ANTIMITOCHONDRIAL AND ANTIMICROSOMAL CYTOTOXIC SERA ON BIOSYNTHESIS OF STEROID HORMONES IN THE ADRENAL CORTEX OF CATTLE. THE TITRE OF THE MENTIONED SERA WAS 1:320. SERA PRODUCED AGAINST INDIVIDUAL CELLULAR ORGANIDS (MITOCHONDRIA AND MICROSOMES) PRODUCED A MORE SELECTIVE INHIBITORY EFFECT ON BIOSYNTHESIS OF CORTICOSTEROIDS THAN THOSE AGAINST THE WHOLE TISSUE.

FACILITY: KIEVSKIY INSTITUT ZABOLEVANIYA POCHEK I MOCHEVYVODYASHCHIKH. VESHCHESTV. PUTEY KIEVSKIY INSTITUT ENDOKRINOLOGII I OBHENA

UNCLASSIFIED

USSR

UDC 615.365.015.45:612.453.018.015.36

RETRIN' N. M., LITVINCHUK, N. K., and SHUL'GINOVA, Z. I., Kiev Institute of Kidney and Urinary Tract Diseases, and Kiev Institute of Endocrinology and Metabolism

"Comparative Study of the Effect of Large Doses of Antiadrenal cortex, Antimitochondrial, and Antimicrosomal Cytotoxic Sera on the Biosynthesis of Corticosteroids"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 3, May/Jun 70, pp 28-31

Abstract: It was found that administration of antiadrenal cortex serum in large doses had an inhibitory effect on the biosynthesis of corticosteroids, when the serum was used as the precursor of such steroid hormones as progesterone or pregnenolone. A large dose of antimitochondrial serum (with progesterone as precursor), had an inhibitory effect on the 21-hydroxylation of progesterone (the formation of 11-desoxycorticosterone and corticosterone was reduced by 37 and 49% respectively). However, the amount of 17-hydroxycorticosteroids--11-desoxycortisole, hydrocortisone, and cortisone -- was not changed. Antimicrosomal serum had no effect on the biosynthesis of corticosteroids from progesterone. In experiments with pregnenolone, a substantial drop in the biosynthesis of 17-hydroxycorticosteroids was observed. Apparently, antimicrosomal serum exerts this effect

1/2

USSR

PETRUN', N. M., et al., Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 3, May/Jun 70, pp 28-31

only on the transformation rate of pregnenolone into its 17-hydroxy derivative. Since the serum in large doses inhibits 17-hydroxylation of pregnenolone but not of progesterone, these two hydroxylases apparently are not identical. Sera developed against particular cellular organisms (mitochondria or microsomes) had a more selective inhibitory effect on the biosynthesis of corticosteroids than did those developed against the whole tissue.

2/2

PETRUNICHEV, V.A.

METALLURGY

PLASMA

Jix

6/3/81

20 Feb. 84

PRODUCTION OF SPHERICAL AND FINELY DISPERSED POWDERS IN LOW-TEMPERATURE PLASMA

Article by N. N. Rykalin, V. A. Petrunichev, I. D. Kujarin, L. N. Seronin, Ye. B. Korolova, A. B. Gurevich, Moscow, Plazmennyye protsessy v metallurgii, Tekhnicheskoye inzhenernoye Materialy, Russian, 1975, pp 240-250

Low-temperature plasma, generated in an arc or induction discharge with spherical particles and ultra-dispersed powders of producing refractory powders, cements, dispersible hardeners of such powders is steadily expanding. Applications include various types of filters, cathodes for vacuum tubes, carbon black, propellant components for alloys, fillers for plastics, pigments, last decade certain organizations of the Soviet Union have developed and investigated new plasma methods for producing such powders and the corresponding apparatus.

Some of the developments have found successful application in industry, particularly in new technology, or are undergoing experimental industrial tests.

The results of investigations conducted by the Institute of Metallurgy, Im. A. A. Baykov, Academy of Sciences USSR, using both arc and induction discharge plasma, are presented in this article. At the present time it is still difficult to delineate the range of efficient features, which may turn out to be advantageous for the solution of specific problems.

Production of Spherical Particles in Arc Plasma

The process of plasma spheroidization annealing of materials may be represented in general form as consisting of the following stages:

1) melting and spraying of treated material, 2) rounding of molten particles, 3) hardening and cooling of particles. The starting material may be inserted in the plasma jet in the form of powder or wire (rods).



The method of injection of the material with a positive potential applied to it from a power source is used for sputtering wire or electrically conducting rods. In this case the anode spot is placed upon the end of the wire or rod to ensure maximum process productivity. Sputtering of powder and nonconducting materials is done in an independent plasma jet.

#### Sputtering of Wire

This process is done in the same way as plasma spraying and may be accomplished with the same equipment. Conducting wire is heated and sputtered with the heat of the arc or joule heat released during the growth of the wire [1, 2]. By analogy with the fusion of welding electrodes, the growth of the liquid droplet of the metal that forms on the end of the droplet is an exponential function of time [3]. However the lifetime of the droplet is substantially shorter here, since considerable forces act on the droplet from the direction of the strong gas flow, heated to a high temperature.

When the forces acting on the droplet from the jet (mechanical force of the gas, pressure of the arc, etc.) and its own weight exceed the surface tension that holds it on the end of the wire, the droplet separates, acquiring an arbitrary outline. Traveling at high speed in the hot gas stream, the liquid particle becomes rounded under the influence of surface tension, and then it cools and solidifies in the normal temperature zone. The spheroidizing time  $t_s$  of the droplet (according to an approximate model of contraction of arbitrary geometric shapes with maximum dimension  $R$  into a sphere with radius  $r$ ) may be found from the condition  $\Delta R = \alpha(\Delta T / \rho) t_s$  and expressed through the equation

$$t_s = (R/2 - r) \sqrt{2\pi} / \sqrt{\gamma \rho \alpha \Delta T} \quad (1)$$

where  $\Delta R$  is the change of a free shape with area  $F$  to a spherical shape with area  $F_s$ ,  $\alpha$  is the surface tension coefficient, and  $m$  is the mass of the particles.

This time comprises thousands and hundreds of a second and is substantially shorter than the time of solidification and cooling of a particle. Tests show that tungsten and molybdenum particles measuring larger than 100  $\mu$  retain their capacity for deformation on impact with water for a distance of 300-400 mm. This must be taken into account in the design of equipment for making spherical particles. In the USSR-2 apparatus (designed by IUT [Institute Metallurgii im. A. A. Baykov], Institute of Metallurgy im. A. A. Baykov) the chamber height is about 1.5 m, which ensures reliable spheroidizing of particles up to 1 mm in diameter without deformation when collected in water.

The complex set of forces that act upon a liquid droplet during sputtering and the possibility of coagulation and breakup of droplets in flight result in considerable scattering of particles in terms of dimensions. For each combination of mode parameters, however, it is

PETRONICHEV, V.A.

# METALLURGY

7865 61321, 26 F.A.T. 74

## THE PHYSICS OF PLASMA METAL SPRAYING, FACING, CUTTING AND SPHERULITIZATION

Article by N. N. Rykalin, V. B. Kulagin, M. Kh. Shorshorov, V. V. Kulagin, A. C. Kravtsov, V. A. Tret'yakov, and A. A. Uralov. Moscow, Fizmatgiz, 1975. Pp 60-83.

### Introduction

The development of the technique of generating low-temperature plasma placed in the hands of technologists an extremely flexible tool, quickly found application for cutting, coating, melting, welding, spherulitizing of low-temperature plasma for research and industrial purposes continues to expand space.

The primary problems that are solved during plasma processes are heating, melting of the base and applied metal. These include local molten metal from a cut, or melting, spraying, directional removal of modern technological plasmas are capable of developing on a solid surface is  $10^5-10^6$  W/cm<sup>2</sup> during plasma are processing and  $10^4-10^5$  W/cm<sup>2</sup> during virtually without bond, depending on the requirements of the process, and can be spread over a large area, insuring "soft", uniform heating of a surface. This property of the plasma jet is used for melting and metal spray coating.

Most plasma treatment processes, even with the highest concentration of energy, may be described on the basis of the theory of concentrated heat sources, developed by N. N. Rykalin [1].

Certain aspects of thermal physics of the most commonly used plasma processes and ways of controlling them are discussed in the article.

USSR

UDC 681.327.67'12

BRODOLIN, L. I., VAYNSHTEYN, V. D., DRACHEV, L. A., KAN, A. Z., KUZNETSOV, B. A., MININ, Yu. P., and PETRUNICHEV, V. N.

"Long-Term Photoscopic Memory"

USSR Author's Certificate No 260926, filed 7 Oct 68, published 10 Jun 70  
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 6,  
Jun 71, Abstract No 6 B325 P)

Translation: A long-term photoscopic memory designed for storing, retrieving, and selecting a symbol image is proposed. The memory contains a light spot commutator -- for example, a cathode ray tube -- a projection objective with telecentric behavior of the beams in the image space, a lense raster information unit, a fast collective, a transmitting cathode ray tube with storage -- for example, the superorthicon type and digital and analog tracking systems for setting the spot on a given address. The memory is distinguished by the fact that to prevent charging the target when retrieving the required microframe, the device contains an electronic image modulator in the transfer section of the transmitting TV-tube. In order to insure a broad range of variation of the capacity of the TV frame and the selection rate, the target of the transmitting TV tube is executed in the form of a metal fiber disc with a coefficient of secondary emission

USSR

BRODOLIN, L. I., et al., USSR Author's Certificate No 260926, filed 7 Oct 68, published 10 Jun 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika , No 6, Jun 71, Abstract No 6 B325 P)

of the side turned toward the photocathode equal to one. In order to simplify the design and insure the possibility of recording the service information used during operation of the tracking systems in the microframe, the device contains a fiber, vacuum-tight coherent light guide with a cross section equal to the size of the symbol in the focal plane of the collective. The photocathode of the transmitting TV tube is applied to the output end of the light guide, and the input ends of the light guides connected with the photomultipliers of the tracking address system are arranged around the perimeter of the input end. In order to insure the required levels of light flux from the standing light spot, the light spot commutator executed in the form of a cathode ray tube contains a built-in screen which vibrates in its own plane. There is 1 illustration.

2/2

- 73 -

USSR

UDC 669.71:539.375

BAZELYUK, G. YA., KOZYRSKIY, G. YA., PETRUNIN, G. A., and POLOTSKIY, I. G.,  
Institute of Metal Physics, Academy of Sciences Ukrainian SSR

"Effect of Preliminary Ultrasonic Irradiation and Thermomechanical Treatment  
on Creep Strength of Aluminum"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 32, No 1, Jul-Aug 71,  
pp 145-151

Abstract: In metals with a low stacking fault energy the weakening of these metals is due to recrystallization while metals with a high stacking fault energy are weakened primarily by means of polygonization. In conjunction with this there was much interest in studying the effect of preliminary ultrasonic irradiation and thermomechanical treatment on the creep strength of metals with a high stacking fault energy so that the authors selected 99.99% pure aluminum which has a stacking fault energy five times greater than copper. Samples measuring 5 mm in diameter and 50 mm long were vacuum annealed at 500°C for one hour, after which part of the samples were creep tested while the others were either irradiated by ultrasound for 0.5 to 6.5 minutes or subjected to plastic deformation at the rate of 0.4% min for a range of from 0.5 to 11%. Prior to testing for creep the samples

1/2

USSR

BAZELYUK, G. YA., et al., Fizika Metallov i Metallovedeniye, Vol 32, No 1, Jul-Aug 71, pp 145-151

were annealed for one hour at the test temperature. It was found that by ultrasonic irradiation and preliminary plastic deformation followed by annealing at the test temperature, the rate of high-temperatures creep for aluminum is substantially lowered. The observed strengthening in the region of large degrees of preliminary deformation and irradiation for 30 seconds can be a basis for developing a technological treatment for increasing creep strength of aluminum for conditions of long-time high-temperature loads. Six figures, 17 bibliographic references.

2/2

- 71 -

Miscellaneous

USSR

UDC 669.15.018.44

KOZYSKIY, G. YA., KONONENKO, V. A., OKRAINETS, P. N., and PETRUNIN, G. A.

"Effect of Preliminary Strain on Heat Resistance of LKh18N9T Steel"

Metallofizika. Resp. mezhved. sb. (The Physics of Metals. Republic Inter-departmental Collection of Works), 1970, vyp. 31, pp 143-148 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3I618 by authors)

Translation: A study was made of the effect of preliminary cold strain (CS) on the surability and steady-state creep rate of LKh18N9T steel. It was found that there are two regions of preliminary CS displaying a significant (five fold in time to rupture increased in the creep resistance of the steel. At 750° and a stress of 12 kg/mm<sup>2</sup> on region is observed in the vicinity of 1.5%, the second in the case of 5-10% strain. There is a discussion of peculiarities of the mechanisms of stabilization of the substructure created by low and high degrees of preliminary CS. Three illustrations. Bibliography with 19 titles.

1/1

Heat Treatment

USSR

UDC 539.4.015.1

KOZYRSKIY, G. YA., KONONENKO, V. A., and PETRUNIN, G. A., Institute of Metal Physics Academy of Sciences UkrSSR

"Forecasting the Possibility of Increasing the Heat Resistance of Metals by Mechanical Heat Treatment"

Kiev, Metallofizika, No 31, 1970, 152-157

Translation: Mechanical heat treatment as a method of increasing the heat resistance of materials does not always lead to a positive effect. Often a great deal of time, money, and effort are spent on a search for the optimum conditions of mechanical heat treatment to obtain new materials. In connection with this the following question arose: Is it possible, without resorting to expensive tests, to forecast the possibility of increasing the heat resistance of new materials by means of mechanical heat treatment according to the characteristics of structural changes which distinguish hardened from nonhardened materials during their service under operating conditions? Using as an example pure nickel and nickel alloyed with aluminum, it is shown that specific disorientation can be such an indicator for pure metals and solid solutions. Mechanical heat treatment led to a positive result only when, during a creep test, at its initial period the specific disorientation

1/2



USSR

KOZYRSKIY, G. YA., et al., Metallofizika, No 31, 1970, pp 152-157

can serve as an indicator as to whether the material has a safety factor and whether it makes sense to subject it to mechanical heat treatment. A study of the kinetics of the change in specific disorientation makes it possible to greatly refine the forecasts of the mechanical behavior of a material, which, in turn, leads to a significant reduction in the volume of tests when new materials are studied.

Bibliography, 10 entries, Illustrations 5.

2/2

- 28 -

Steels

USSR

UDC 539.4.015.1

KOZYRSKIY, G. YA., KONONENKO, V. A., OKRAINETS, P. N., and PETRUNIN, G. A.,  
Institute of Metal Physics, Academy of Sciences UkrSSR

"The Dependence of Heat Resistance of Kh18N9T Steel on the Value of Preliminary Deformation"

Kiev, Metallofizika, No 31, 1970, pp 143-148

Translation: This work investigated the effect of preliminary cold deformation on the durability and rate of the established creep of Kh18N9T age-hardenable steel. It was established that there are two regions of preliminary deformation in which a considerable increase (of 5 times in the time prior to fracture) in the steel's creep resistance is observed. At a temperature of 750°C and a stress of 12 kg/mm<sup>2</sup> one region is observed near 1.5% and the second, with a deformation of 5-10%. This study discusses the characteristics of the mechanisms of stabilisation of the substructure created by small and large degree of preliminary deformation.

Bibliography: 19 entries, 3 illustrations.

1/1

172 022

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--EFFECT OF PREVIOUS ULTRASONIC IRRADIATION ON THE HIGH TEMPERATURE CREEP AND MICROHARDNESS OF COPPER -U-

AUTHOR--(04)-BAZELYUK, G.YA., KOZRSKY, G.YA., POLOTSKY, I.G., PETRUNIN, G.A.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, MAR. 1970, 29(3), 508-511

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--COPPER, HIGH TEMPERATURE EFFECT, ULTRASONIC IRRADIATION, METAL MICROHARDNESS, METAL CREEP

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3003/0206

CIRC ACCESSION NO--AP0129462

STEP NO--UR/0126/70/029/003/0508/0511

UNCLASSIFIED

272 022

CIRC ACCESSION NO--AP0129462  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT. THE EFFECT OF ULTRASONIC IRRADIATION ON THE CREEP AND MICROHARDNESS OF CU AT ELEVATED TEMP. (500DEGREESC) WAS STUDIED. PRELIMINARY ULTRASONIC IRRADIATION GREATLY INCREASED THE RESISTANCE TO HIGH TEMP. CREEP; THE LIFE OF CU SAMPLES IRRADIATED TO AN OPTIMUM EXTENT INCREASED BY A FACTOR OF 3 AND THE STEADY CREEP RATE WAS 8 TIMES SLOWER THAN IN SAMPLES NOT SUBJECTED TO IRRADIATION. THE MICROHARDNESS OF SOME SAMPLES BEFORE IRRADIATION WAS 40 KG-MM PRIME2; AFTER IRRADIATION FOR 10 MIN THIS VALUE DOUBLED. THE GEOMETRICAL DIMENSIONS OF THE IRRADIATED PARTS WERE UNAFFECTED BY THIS TREATMENT.

UNCLASSIFIED

Controls

USSR

UDC: 621.396.6.001.2

PETRUNIN, S. P.

"Design of Servodrive Speed Reducers for Radio Equipment"

Konstruirovaniye reduktorov sledyashchego privoda radioapparatury (cf. English above), Moscow, "Sov. radio", 1971, 143 pp, ill. 37 k. (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V454 K)

Translation: The book presents basic problems in the design of speed reducers for the servodrive of electromechanical devices in shipborne electronic radio equipment. Speed reducers for electronic radio equipment are classified. Sources for development of external loads on the mechanisms are pointed out. Basic requirements are formulated for servodrive speed reducers on the basis of the quality indices of the servosystems. Experience in construction of an optimum modification of the kinematic chain is generalized. Problems of calculating and measuring free play and correcting tooth engagement are discussed. Various methods are proposed for compensating temperature variations of distances between centers. Recommendations are given on selecting ball bearings and on installing ball bearing assemblies. The material presented is illustrated by specific speed reducer designs. The book is written for design engineers working with radio equipment, and will also be of use to college students of instrument engineering. 60 illustrations, 6 tables, bibliography of 19 titles. Resumé

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1/2 013  
TITLE--STRUCTURE OF TA SUB2 D -U- UNCLASSIFIED PROCESSING DATE--11SEP 0  
AUTHOR--~~RETRUNIN~~, V.F., SOMENKOV, V.A., SHILSHTEYN, S.SH., CHERKOV, A.A.  
COUNTRY OF INFO--USSR  
SOURCE--KRISTALLOGRAFIYA, 1970, 15(1) 171-3  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--DEUTERIUM COMPOUND, TANTALUM COMPOUND, NEUTRON DIFFRACTION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1986/0015 STEP NO--UR/0070/70/015/001/0171/0173  
CIRC ACCESSION NO--AP0102115  
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102115

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY MEANS OF A HIGH INTENSITY, HIGH RESOLUTION NEUTRON DIFFRACTOMETER, POLYCRYST. TAD SUBO TIMES 53 WAS STUDIED AT 80-400 DEGREES K. ON THE NEUTRON DIFFRACTION PATTERNS, IN ADDN. TO THE DIFFRACTION PEAKS OBSD. PREVIOUSLY BY WALLACE (CA 56: 12396G), SEVERAL WEAK REFLECTIONS ALSO WERE OBSD. ALL THE REFLECTIONS MAY BE INDEXED IN A UNIT CELL WITH PARAMETERS A APPROXIMATELY EQUAL TO B APPROXIMATELY EQUAL TO A SUBO ROOT BAR 2 AND C APPROXIMATELY EQUAL TO A SUBO (A SUBO IS THE TA LATTICE PERIOD).. THE WEAK HYPERFINE STRUCTURAL REFLECTIONS ARE DESCRIBED BY THE RELATION  $K + L = 2N$ . TAD SUBO TIMES 53 BELONGS TO THE SPACE GROUP D PRIME 6 OVER 2 MINUS A 222; 4 TA ATOMS ARE IN POSITION 4K AND 2 D IN 2A POSITION. THIS MODEL IS CHARACTERIZED BY 1 PARAMETER X FOR METAL ATOMS; ITS VALUE OBTAINED BY MINIMALIZATION OF DIVERGENCE FACTOR FOR HYPERFINE REFLECTIONS AT ROOM TEMP. IS X EQUALS 0.012 (0.017 FOR THE TEMP. OF LIQ. N) FROM THE PERIOD A OF THE ORTHORHOMBIC DEUTERIDE LATTICE.

UNCLASSIFIED

USSR

UDC 548.736.6

PETRUNINA, A. A., ILYUKHIN, V. V., and BELOV, N. V., Academician, Institute of Crystallography of the USSR Academy of Sciences, Moscow

"Crystal Structure of Tinaxite= $\text{NaK}_2\text{Ca}_2\text{TiSi}_7\text{O}_{19}(\text{OH})$ "

Moscow, Doklady Akademii Nauk SSSR, Kristallografiya, Vol 198, No 3, 1971, pp 575-578

Abstract: The authors study the crystal structure of a new natural silicate of titanium, sodium, potassium, and calcium. A table is given for the base atoms of tinaxite along with the following graphs: 1) The xz-projection of tinaxite structure. An infinite wall with respect to two measurements consisting of three types of octahedrons: Na, Ti, and a double number of Ca. The wall splits into pilasters (each consisting of two columns), one of pure Ca-octahedrons and the other of alternating pairs of Na- and Ti-octahedrons. 2) An idealized tinaxite silicon-oxygen radical band of parallel and converged chains: wollastonite and vlasovite. 3) A tinaxite band in a natural state with a re-entrant angle between the two components. 4) An xy-projection of the structure of tinaxite. The translationally identical walls are shown with the end planes of the columns: pilasters of double  
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USSR

PETRUNINA, A. A., et al., Doklady Akademii Nauk SSSR, Kristallografiya, Vol 198, No 3, 1971, pp 575-578

Ca-columns and pilasters with alternating Na- and Ti-pairs. Silicon-oxygen bands can be seen in the left cell, while large K cation fillers are seen in the right. The authors thank A. A. Voronkov and Yu. A. Pyatenko for allowing them the use of their experimental material and thus making possible the decoding of this complex and unusual silicate. They also thank B. A. Maksimov for his assistance. Original article: one table, four figures, and six bibliographic entries.

2/2

- 65 -

USSR

UDC 669.24'28'293'294', 295'296.017.3

VARICH, N. I., and PETRUMINA, A. N., Dnepropetrovsk State University

"Metastable Phases in Binary Nickel Alloys Crystallized at Rapid Cooling Rates"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 33, No 2, Feb 72, pp 335-338

Abstract: The phase composition of Ni-Mo, Ni-Ta, Ni-Nb, Ni-Ti, and Ni-Zr alloys was investigated at an alloy cooling rate of  $10^7$ - $10^8$  deg/sec. These cooling rates were achieved by blowing the cupel of the melt (2000°C) with a jet of compressed helium onto the surface of the copper cylinder which rotated at the rate of 8000 rpm. This cooling method produced films 0.01-0.02 mm thick. For each of the alloys the authors determined the equilibrium solubility at the eutectic temperature, eutectic point and region of homogeneity for the high-temperature phase, the maximum solubility, and the maximum supersaturation of the solid solution. It was determined that the rapid cooling rates produce a metastable phase with the simplest grain structure which is formed as the result of the increased rate of nucleation and subsequent growth. Two figures, 3 tables, 8 bibliographic references.

1/1

USSR

UDC 669.24'26'292:548.5

VARICH, N. I., and PETRUNINA, A. N., Dnepropetrovsk State University,  
Department of Physics of Metals

"Crystallization of Ni-Cr and Ni-V Alloys at Superhigh Cooling Rates"

Ordzhonikidze, Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya  
metallurgiya, No 2, 1972, pp 92-95

Abstract: This study concerns certain crystallization characteristics of Ni-Cr and Ni-V alloys at cooling rates of  $10^7$  to  $10^8$  deg/sec effected by blowing out droplets of the melt (with compressed helium) onto the surface of a copper cylinder rotating at 8000 rpm. This method of cooling produces 0.01-0.03-mm films for x-ray diffraction and metallographic analyses to determine their phase compositions and crystal lattice periods. The data on variations of the crystal lattice periods, microhardness, and microstructure values of both alloys are reflected in curves showing them as a function of composition. (2 illustrations, 1 table, 6 biblio. references)

1/1

USSR

UDC 616.992-031.81-036.12

PETRUNINA, M. P., Candidate of Medical Sciences, ARIYEVICH, A. M., Professor, MALKINA, A. Ya., Candidate of Biological Sciences, and KUNEL'SKAYA, V. Ya., Candidate of Medical Sciences, Diagnostic Department of the Moscow Institute of Tuberculosis, Institute of Medical Parasitology and Tropical Throat Institute of the Ministry of Health RSFSR, Moscow.

"Chronic Disseminated Histoplasmosis"

Moscow, Klinicheskaya Meditsina, Vol 49, No 11, 1971, pp 148-150

Abstract: A 21-year old female student developed an acute disease involving headache, high fever, and rhinitis. The diagnosis of left maxillary sinusitis was established, and sinusotomy was performed in November 1967. In March 1968, the patient's persistent headache became more severe and aggravated by cough with mucous, pussy, hemorrhagic phlegm. On the basis of clinical observations and X-ray examinations, the diagnosis of infiltrative pneumonic tuberculosis was established, although tuberculosis mycobacteria were not isolated. Administration of streptomycin, tubazid, and PAS was discontinued after a month because of coating and erosion of the tongue and gums. Smears of these organs revealed Candida fungus, and the diagnosis of candidomycosis of the lungs and the mouth was established. Administration of nystatin and levorin improved

1/3

USSR

PETRUNINA, M. P., et al., Klinicheskaya Meditsina, Vol 49, No 11, 1971, pp 148-150

the patient's overall condition but not that of her lungs. In September 1968, she was hospitalized with sharp pain in the left thorax, cough, and headache, but normal digestion, skin, normal visible mucous membranes, and lymph nodes. X-rays revealed dark areas in the lower portions of the lungs and a moderate opacity of maxillary and frontal sinuses. Subatrophy and hemorrhages were observed in the nasal mucosa. Blood sedimentation rate was 57 mm/hr. No pathogens of systemic mycoses were found in bronchial and sinus wash fluid. However, after sternal puncture, Histoplasma cells were observed in the protoplasm of bone marrow cells. After a 3-week long administration of mystatin, with 5,000,000 units per day, the opaque structure in the left lung was replaced with fibrous tissue. By that time, the patient's headache became intolerable, her maxillary sinuses were uniformly darkened and her nasal mucosa was hyperemic, superficially ulcerated, and covered with an exudate. Puncture of the right maxillary sinus yielded a considerable quantity of grayish-white pus. A sample of that pus was treated with tetracycline and injected intraperitoneally into nine mice. Subsequent necropsy revealed enlargement of the spleen in all animals and the presence of large numbers of Histoplasma capsulatum cells inside reticular tissue cells. Administration

2/3

- 13 -

USSR

PETRUNINA, M. P., et al., Klinicheskaya Meditsina, Vol 49, No 11, 1971, pp 148-150

of amphotericin B (a total of 2,000,000 units) brought no improvement. After a second treatment with nystatin (a total of 60,000,000 units), the dark area in the right lung also changed into fibrous tissue. In June 1969, surgery was performed on the maxillary sinuses: the considerably thickened, hyperplastic, granulated mucosa of the sinuses was removed, and passages communicating with the nasal cavity were created. Histoplasma capsulatum was found in the excised mucosa. After the surgery, the patient's condition significantly improved and remained satisfactory throughout the year of observation.

2/2

USSR

UDC 621.3032.269.1

PANOV, V.P., GORBATOV, D.M., PETRUNINA, N.I.\* [\* Transliterated from Ukrainian]

"Development Of Electron Guns With Ribbon Flow"

Ukr. fiz.zh. (Ukrainian Journal Of Physics), 1971, 16, No 6, pp 966-970 (from RZh--Elektronika i yeye primeneniye, No 11, Nov 1971, Abstract No 11A23)

Translation: In order to improve the properties of klystrons with a ribbon beam it is desirable to increase the value of the perveance of the flow per unit length. As a result of the study with the use of an electrolytic bath of the effect of the anode aperture, corrections are obtained to the magnitude of the perveance and the dependences characterizing the nonuniformity of current takeoff from the cathode. The basic geometry and experimental data are presented for electron guns with a linear perveance of 133, 220, and 360 microamp/v<sup>3/2</sup>.m with voltages above 10 kv. Summary.

1/1

USSR

UDC 632.95

YEVREYEV, V. N., KOTLYAR, G. A., KLIMOVA, L. K., MIZYUKOVA, I. G., and PETRUN'KIN, V. Ye., All-Union Institute of Hygiene and Toxicology of Pesticides, Polymers, and Plastics

"A Method of Obtaining Trivalent Cobalt Compounds with Diethanolamine"

USSR Author's Certificate No 356322 published 23 Jan 73 (from RZh-Khimiya, No 22, 25 Nov 73, Abstract No 22N569 by T. Ya. Ogibina)

Translation: Compounds with the formula  $\text{Co}[\text{NH}(\text{C}_2\text{H}_4\text{O})_2\text{NH}(\text{C}_2\text{H}_4\text{O}) \cdot (\text{C}_2\text{H}_4\text{OH})]$  (I) and active as pesticides are obtained by splitting (with an alkaline agent) binuclear complexes containing bi- and trivalent Co in the ratio of 1:1 like  $\text{Co}_2\text{NH}(\text{C}_2\text{H}_4\text{OH})_2[\text{NH}(\text{C}_2\text{H}_4\text{O})_2]_2\text{X}$  (II) or  $\text{Co}_2[\text{NH}(\text{C}_2\text{H}_4\text{O})_2]_2\text{X}$  (III) ( $\text{X} = \text{Cl}$ ). Example. 10 ml of water and 0.1 mole of an NaOH solution in 20 ml of water are added to 0.01 mole of II hydroxide. The mixture is filtered and the filtrate evaporated over  $\text{CaCl}_2$  and 10 days later I,  $\text{C}_8\text{H}_{18}\text{N}_2\text{O}_4\text{Co} \cdot 9\text{H}_2\text{O}$  is isolated, yield 60%. I is obtained with a yield of 72% by splitting III  $\cdot 4\text{H}_2\text{O}$  under the same conditions.

1/1



USSR

UDC 615.31:547.497.6

KRIVENCHUK, V. Ye., and PETRUN'KIN, V. Ye., All-Union Research Institute of Hygiene and the Toxicology of Pesticides, Polymers, and Plastics, Kiev

"Thiohydroximic Esters. I. S-diethylaminoethyl Esters of Thiohydroximic Acids and Their Derivatives"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, No 3, 1973, pp 13-16

Abstract: Since thiohydroximic esters (I) have not been investigated extensively and may possibly activate cholinesterase, they were synthesized by reacting hydroximic acid chlorides with 2-diethylaminoethanethiol. The resultant I hydrochlorides were obtained as crystalline substances that usually were water soluble. Reaction of I with one equivalent of base resulted in water insoluble products that were poorly soluble in organic solvents. Alkylation of the latter products in alcohol, nitromethane, or dimethylformamide led to the formation of quaternary derivatives. It has been reported that hydrochlorides of the S-diethylaminoethyl esters of the thiohydroximic acids are effective in protecting experimental animals from O, O-dimethyl-O-(2,2-dichlorovinyl)phosphate intoxication.

1/1

- 29 -

Pharmacology and Toxicology

USSR

UDC 615.917

KURCHATOV, G. V., LYSENKO, N. M., MIZYUKOVA, I. G., and PETRUN'KIN, V. YE.,  
All-Union Scientific Research Institute of Hygiene and the Toxicology of  
Pesticides, Polymers, and Plastics

"Relationship Between the Structure and the Medicinal Properties of Sulfur-  
and Nitrogen-Containing Compounds"

Kiev, Fiziol. aktium. Veshch. Resp. mezhbed. sb. (Physiological Properties of  
Compounds, Republic Interscience Symposium), Vyp 4, 1972, pp 62-65 (from  
Referativny y Zhurnal -- Farmakologiya. Khimioterapevticheskiye Sredstva.  
Toksikologiya, No 1, 1973, Abstract No 1.54.747)

Translation: The medicinal properties of three types of compounds -- thiols,  
ethanolamines, and acyl- and alkyl-containing aminothiols -- were studied in  
order to search for antidotes for heptachlor poisoning. It was determined that  
only the hydroxy-derivatives of acyl- and alkylaminothiols demonstrate a posi-  
tive effect and they are more active than diethanolaminomethyl thioacetate.

1/1

USSR

UDC 577.1:615.7/9

KURCHATOV, G. V., LYSENKO, N. M., MIZYUKOVA, I. G., and PETRUN'KIN, V. Ye.

"Relationship Between the Structure and Therapeutic Activity of Sulfur- and Nitrogen-Containing Compounds"

Fiziol. aktivn. veshchestva. Resp. mezhved. sb. (Physiologically Active Substances. Republic Interdepartmental Collection), 1972, No 4, pp 62-65 (from RZh-Biologicheskaya Khimiya, No 4, Feb 73, Abstract No 4 F1915 by D. M. Glukharev)

Abstract: Mice and rats received a single intragastric injection of industrial heptachlor (71%; LD<sub>50</sub>), after which a study was made of the antitodal and therapeutic effect of thiols (aliphatic and fatty-aromatic series and their derivatives), ethanolamines (and their derivatives), and S-acyl- and S-alkyl derivatives of  $\alpha$ -aminothiols administered subcutaneously or perorally 20 to 30 minutes before and secondarily immediately after poisoning in doses amounting to a double equimolar excess with respect to the poison. Several sulfur-containing compounds were tentatively included among the ethanolamine derivatives (mono- and diethanolamines). A total of 33 substances were investigated. Only the hydroxy derivatives of the S-acyl- $\alpha$ -aminothiols possessed a marked antitodal effect. Diethanolaminomethyl thioacetate was the most active.

1/1

- 62 -

1/2 008  
UNCLASSIFIED  
TITLE--REACTION OF CYCLIC TRISULFIDES WITH SODIUM CYANIDE -U-  
AUTHOR--(02)--FEDOSEYEVA, V.N., RETRUNKIN, V.YE. P  
COUNTRY OF INFO--USSR  
SOURCE--UKR. KHIM. ZH. 1970, 36,(2), 181-3.  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--POLAROGRAPH ANALYSIS, CYANIDE, HETEROCYCLIC SULFUR COMPOUND,  
ORGANOSODIUM COMPOUND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--2000/2220  
CIRC ACCESSION NO--AP0125799  
STEP NO--UR/0073/70/036/002/0181/0183  
UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0125799

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. S(SCH SUB2 CH SUB2 SO SUB3 NA) SUB2 AND NACH FORMED NACNS AND (SCH SUB2 CH SUB2 SO SUB3 NA)2, M. 275-6DEGREES (BENZYLTHIURONIUM SALT M. 97DEGREES), ALSO FORMED FROM NA SUB2 S SUB2 AND CLCH SUB2 CH SUB2 SO SUB3 NA. I AND NACH YIELDED THE FOLLOWING II (R, M.P., AND M.P. OF BENZYLTHIURONIUM SALT GIVEN): SO SUB3 NA, 254DEGREES, 92DEGREES; OCH SUB2 CH SUB2 SO SUB3 NA, 250DEGREES, 58DEGREES; SCH SUB2 CH SUB2 SO SUB3 NA, 240DEGREES, 69DEGREES. POLAROGRAPHIC HALF WAVE POTENTIALS OF II WERE COMPARED WITH THOSE OF THE PRODUCTS OF OXID. OF CH SUB2 SHCHSHCH SUB2 R. FACILITY: KIEV. NAUCH., ISSLED. INST. FARMAKOL. TOLSIKOL., KIEV, USSR.

UNCLASSIFIED

1/2 011  
UNCLASSIFIED  
TITLE--PREPARATION OF THE THIOAMIDE OF DIMETHYLGLYCINE -U-  
AUTHOR--(02)-VASILYEVA, Z.A., PETRUNKIN, V.YE.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. ORG. KHIM. 1970, 6(4), 882-3  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--AMMONIA, HYDROGEN SULFIDE, ORGANIC NITRILE, AMIDE, GLYCINE,  
ORGANIC SYNTHESIS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3001/0709  
CIRC ACCESSION NO--AP0126421  
STEP NO--UR/0366/70/006/004/0892/0883  
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0126421

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PASSAGE OF NH SUB3 AND H SUB2 S  
THROUGH A COLD SOLN. OF ME SUB2 NCH SUB2 CN IN ALC. GAVE 56PERCENT ME  
SUB2 NCH SUB2 CSNH SUB2 (I). THE HCL, HBR, AND OXALATE SALTS OF I WERE  
ALSO PREPD. FACILITY: VSES. INST. GIG. TOKSIKOL. PESTITS.  
POLIM. PLAST. MASS, KIEV, USSR.

UNCLASSIFIED

USSR

UDC 523.164

YESEPKINA, N. A., PETRUN'KIN, V. Yu., SOBOLEVA, N. S., and REYNER, A. V.

"Polarization Observations in an Antenna of Variable Profile"

Gor'kiy, Izvestiya VUZ--Radiofizika, Vol 14, No 8, 1971, pp 1149-1159

Abstract: A method is considered for eliminating parasitic polarization in antennas of variable profile through the use of a grid of curved wires. A description is also given of experiments performed at the Large Radiotelescope of the Pulkova Observatory to verify the effectiveness of the new design and the conclusions reached by the authors. Equations are derived for determining the shape of the grid wires on the basis of an earlier paper written by the first author named above (Radiotekhnika i elektronika, 6, No 12, 1961, page 1947). To design the grid, the authors use the focal synthesis method, in which the antenna is assumed to be excited by a plane wave with constant polarization. This permits determination of the field polarization at a given surface close to the focal plane. The grid which would permit the synthesis of the field distribution found by this method is then chosen. The authors thank G. M. Timofeyeva for her assistance, consisting of observation of solar circular polarization with the grid. The authors are connected with the Chief Astronomical Observatory.

1/1



USSR

UDC 616.988.21-092.9-036.1

PETRUN'KINA, Ye., M., Division of General Pathology, Institute of Experimental Medicine, Academy of Medical Sciences, USSR, Leningrad

"Characteristics of the Clinical Pattern of Laboratory Rabies in Rats"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 3, 1971, pp 70-71

Abstract: Seventy-three albino rats were inoculated with 0.1 ml of rabies virus emulsion each in the brain at a depth of 2-3 ml. Thirty-nine animals contracted the disease and died. The illness had three stages: precursor, peak, and agonal. The animals showed loss of weight from the start of the experiment, dropping to 6-26% of initial weight by the time of death. Sixty-six percent of the rats had fever at the end of the incubation period. The fever decreased at the peak of the illness, dropping to 19-20°C. Temperature shifts in rats, although generally similar, are not as constant or as clearly defined as in rabbits, which are thus more suitable for special study of temperature dynamics in rabies. In large numbers of experimental series, however, body temperature dynamics is valuable for studies of the general characteristics of severity and dynamics of the illness. The temperatures should be taken the day before inoculation and thereafter twice daily with 5-6 hour intervals.

1/1

USSR

UDC: 669.295.053.4.094(088.8)

PETRUN'KO, A. N., MEYERSON, G. A., ROGATKIN, A. A., PAMPUSHKO, N. A., OLESOV, Yu. G.

"Method of Processing of Iron-Titanium Concentrates"

USSR Author's Certificate Number 353992, Filed 12/07/70, Published 10/11/72  
(Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G212P, by G. Svodtseva).

Translation: A method of processing of Fe-Ti concentrates, consisting in reduction of the concentrates by carbon in an atmosphere of  $N_2$  at  $1200-1400^\circ$ , leaching with HCl and chlorination of the residue. In order to increase the productivity of the process and reduction of the concentrate to oxycarbonitride containing 5-7%  $O_2$ , reduction is performed in a stream of rarefied  $N_2$  with a residual gas pressure of 0.2-0.4 atm. abs. at  $1200-1500^\circ$ , while  $FeCl_3$  is crystallized from the solution produced after leaching, then reduced by the hydrogen formed during leaching to Fe powder.

USSR

UDC 669.295.6

MEYERSON, G. A., OLESOV, YU. G., GLUKHOV, V. P., and PETRUN'KO, A. N., Zaporozh'ye

"Study of the Process of Hydrogenization of Electrolytic Titanium"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan 71, pp 48-51

Abstract: This work presents the results of laboratory and pilot-scale studies on the development of a technology for the production of hydride-saturated electrolytic titanium. The dependence of the degree of hydrogen saturation of electrolytic titanium on temperature in the 300-800°C temperature interval and on duration of the hydrogenation process is studied. In order to produce titanium hydride corresponding to the formula  $TiH_2$ , it is expedient to conduct the process of hydrogenation with a gradual decrease in temperature at steps of 70-100° from 650 to 250-300°C, with holding for 20-30 minutes after pressure stabilization in the retort.

1/1

2

UDC 669.295-492.8

USSR

VOROB'YEV, B. YA., OLESOV, YU. G., USTINOV, V. S., PETRUN'KO,  
A. N., KONOVALOV, V. K., and ZAPADNYA, V. I.

"Assembly-Line Manufacture of Construction Parts From Titanium  
Powder by the Metal-Ceramic Process"

Moscow, Tsvetnyye Metally, No 7, Jul 70, pp 65-66

Abstract: The titanium powder discussed in this article is made from reworking the wastes formed in the production of parts and semi-finished titanium materials by an electrolytic refining process. The article describes the metal-ceramic method by which the powder is first pressed into bricks and baked in a vacuum at 1100° C. The materials for the finished parts is then pressed on P-472, P-474, and D-2334 hydraulic equipment with a force of 100-250 tons, used normally for the production of plastic parts. The process for producing the finished parts is described and the hourly rates for making disks, rings, and flanges 57 mm in diameter and 12-15 mm high, are specified. The article is illustrated with a cross-sectional sketch of the modernized EVT-15 vacuum oven in which the parts are baked before finishing. Dimensions of the oven are given in this sketch,  
1/2

USSR

VOROB'YEV, B. YA., et al., Tsvetnyye Metally, No 7, Jul 70,  
pp 65-66

and the various parts identified. A photograph of some of the  
parts manufactured by the metal-ceramic process is also shown.

2/2

USSR

UDC 669.295.015.3:543.42

GRIKIT, I. A., GALUSHKO, Ye. G., MAKARENKO, V. S., and PETRUN'KO, M. N.

"Spectrographic Determination of Controlled and Uncontrolled Impurities in Metallic Titanium"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya Publishing House, Vol 6, 1970, pp 160-165

Translation: A description is given of an analysis of a sample of metallic titanium in the forged state using the ISP-30 or ISP-28 spectrographs. The spectrum is excited by an alternating current arc of ten amperes (DG-2). The time of preliminary sintering is five seconds to establish the iron, silicon, vanadium, chromium, tin, manganese, copper, nickel, aluminum, and zirconium, and 80 seconds to determine the molybdenum and tungsten. The analytic interval is 1.5 mm. Graduated charts were constructed on the coordinates ( $\Delta S$ ,  $\lg C$ ) according to the three-stage method. The method ensures testing within a range of the concentrations that follow: 0.01-0.2% Fe; 0.002-0.1% Si; 0.002-0.2% V; 0.04-0.2% Cr; 0.003-0.15% Sn; 0.005-0.15% Mn; 0.0009-0.25% Cu; 0.01-0.23% Ni; 0.004-0.2% Al; 0.002-0.17% Zr; 0.006-0.18% Mo; and 0.02-0.1% W. The reproducibility of results from analysis according to this method is characterized by a variation

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USSR

GRIKIT, I. A., et al., Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya Publishing House, Vol 6, 1970, pp 160-165

coefficient of 10-20% depending on the element being tested and its concentration. It was established that the mass of the specimen has a considerable influence on the results of spectral analysis. For the purpose of eliminating the possibility of distorting the results of spectral analysis, it is essential that the specimens of metallic titanium being analyzed correspond in mass and structure to the standard test pieces. Four illustrations, two tables, and five bibliographic entries.

2/2

- 71 -

USSR

UDC 669.71.046.44

LAGUNOV, YU. V., GLADKIKH, V. A., PETRUNOV, V. S., RUDENKO, V. K., VOYTANIK, S. T., KLIMKOVICH, N. S., PORADA, A. N., and CHERNYSH, F. I.

"Investigation of the Kaolin Sintering Process"

Metallurgiya i koksokhimiya. Mezhd. resp. nauchno-tekhn. sb. (Metallurgy and Coke Chemistry -- Interdepartmental Republic - Collection of Scientific and Technical Works), 1970, vyp. 21, pp 47-55 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3 G143 by authors)

Translation: The authors work out the parameters of the sintering process for kaolins of the Glukhovetskoye, Prosyanyaya, and Novoseletskoye deposits in a laboratory sintering cup of square section with a sintering area of  $0.1 \text{ m}^2$  and with an exhaustor having an efficiency of  $0.5 \text{ m}^3/\text{sec}$ . Fe concentrate was used as an additive to lower the melting point of the sintering charge. The hygroscopic moisture content of both primary and secondary kaolins intended for sintering should range from 13 to 18%. The sintering of both primary and secondary kaolins is shown to be possible in principle. 5 tables.

1/1



1/2 024  
TITLE--UTILIZATION OF ION EXCHANGE RESINS TO DETERMINE AMINO ACIDS OF  
MICROBIAL ORIGIN --U-  
AUTHOR--(02)--BONISLAVSKAYA, K.G., PETRUS, V.S. P  
COUNTRY OF INFO--USSR  
SOURCE--MIKROBIOL. ZH. (KIEV) 1970, 32(1), 124-6  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--KLEBSIELLA, CONTINUOUS CULTURE, AMINO ACID, BIOSYNTHESIS,  
FRACTIONATION, ION EXCHANGE RESIN, PAPER CHROMATOGRAPHY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3006/0489  
CIRC ACCESSION NO--AP0134257  
STEP NO--UR/0438/70/032/001/0124/0126  
UNCLASSIFIED

272 024

CIRC ACCESSION NO--AP0134257  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT. CULTURE MEDIUM (10.1.), PREVIOUSLY  
SEPD. FROM KLEBSIELLA PNEUMONIAE BY CENTRIFUGING AT 12,000 RPM FOR 20  
MIN, WAS PASSED THROUGH AN ION EXCHANGE RESIN KU-1 COLUMN (200 TIMES 12  
MM), CONTG. 6 G CATIONITE, IN THE H PRIME POSITIVE FORM, OBTAINED BY  
WASHING WITH 2N MINERAL ACID. THE LIQ. WAS PASSED AT 15-20 DROPS PER  
MIN, THE RESIN WAS THEN WASHED WITH DISTO. H SUB2 O UNTIL NEUTRAL BEFORE  
ELUTION OF THE ABSORBED AMINO ACIDS WITH N NH SUB4 OH; TO REMOVE THE  
AMINO ACIDS COMPLETELY, THE COLUMN WAS THEN WASHED WITH 30 ML OF DISTO.  
H SUB2 O. THE FILTRATES WERE COMBINED, AND EVAPD., AND THE RESIDUE WAS  
DISSOLVED IN 0.4 ML OF ISO-PROH. THIS SOLN. WAS PUT ON CHROMATOG.  
PAPER, AND ANALYZED FURTHER BY USUAL METHODS.  
UZHGOROD. DERZH. UNIV., UZHGOROD, USSR.

FACILITY:

UNCLASSIFIED

AM0333071

P

7

Belyavov, V....; Bolotovskaya, I.P.; Gotovtsev, A.A.; Zak, P.G.;  
Kedrin, V....; Kuznetsov, V....; Petrushevich, A.I.; Pronin, E....;  
Reshetov, D....; Reshetov, L.W.; Stolbin, G.B.

Machine Parts. Calculation and Design. Manual. Vol.3. Third Ed. rev.  
 (Detali mashin. Raschet i konstruirovaniye. Spravochnik. Tom 3.  
 Izd. tret'ye, perer.) Moscow. Mashinostroyeniye. 1969.  
 (SL: TJ 243 Ac 45m3 vol.3)

TABLE OF CONTENTS:

|   |     |
|---|-----|
| General Information on Transmissions            | 6   |
| Gear Drives                                     | 15  |
| Worm and Helical Gears                          | 217 |
| Planetary Gears                                 | 261 |
| Chain Drives and Elements of Chain Arrangements | 278 |
| Belt Drives                                     | 348 |
| Fractional Transmissions and Variators          | 424 |
| Alphabetical Subject Index                      | 459 |

19701456

18

Coatings

UDC: 546.882'S11:548.522

USSR

PETRUSEVICH, I. V., KOZLOV, F. N., BOGDANOV, V. P., NISEL'SON, L. A.

"Production of  $Nb_3Sn$  Coatings from the Gas Phase"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, No 6, Jun 73, pp 952-955.

Abstract: Coatings of  $Nb_3Sn$  were produced on a moving strip of nickel by reduction of  $NbCl_5$  and  $SnCl_4$  from the gas phase. The dependence of coating thickness and yield on strip movement rate through the experimental apparatus is presented in tabular form. In the apparatus used, varying strip movement rate from 5 to 15 cm/min caused the coating thickness to decrease from 10.8 to 0.6  $\mu$ . Joint reduction of the higher chlorides of Nb and Sn by hydrogen in continuous apparatus used was determined by coating thickness as a function of strip movement rate, hydrogen concentration and gas stream velocity. The composition and structure of the  $Nb_3Sn$  coatings were found to be homogeneous along the length of the tape. The temperature at which the coatings convert to the superconducting state is 17.7° K.

1/1

USSR

USSR 011.074.10

BOZHAROV, V. P., KHOTOMLYANSKIY, A. I., KURKIN, A. N., POKHODNICHENKO, A. I., and  
BOZHAROV, G. P., Chadanov Metallurgical Plant (Izvestiya)

"Effect of Straightening on the Changes in Mechanical Properties of Dressed  
Cold-Rolled Sheet Steel"

Moscow, Steel', No 10, Oct 70, pp 921-923

Translation: The straightening of strips in the lines of transverse cutting  
units leads to a change in the mechanical properties of cold-rolled dressed  
steel. The tensile strength increases and the relative elongation, the depth  
of hole extrusion according to Eriksen, the yield point, and the hardness de-  
crease. The reduction of strip thickness brings about a reduction in the  
efficiency of straightening according to mechanical properties.

1/1

USSR

DUMAREVSKIY, YU. D., DUL'DIYER, G. N., and PETRUSEVICH, V. A.

"An Optical-Electronic Adder"

Otkrytiya Izobretmeniya Promyshlennye Obraztsy Tovarnyye Znaki, No 35, 1972,  
Patent No 359651

Translation: 1. An optical-electronic adder for optical signals, containing a light-controlled source of a voltage of variable amplitude, differing in that in order to simplify the adder and increase reliability and speed, it contains a device for linear scanning of the light beam which is connected to the source of variable-amplitude voltage and beneath which are three photosensors, the second of which is partially covered by the third photosensor connected parallel to the first.

2. An adder conforming to Para 1, differing in that the source of variable-amplitude voltage consists of a film with a photoelectric effect.

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UDC 621.383.52.072.1

USSR

VARLAMOV, I.V., DESHEVOY, A.S., KALADZE, M.K., PETRUSEVICH, V.A., RZHANOV, A.YE.

"Measurement Of The Impedance Of Photoresistors In The Pinch-Off Region And At The Section Of Negative Differential Resistance"

Sb.nauch.tr.po probl.mikroelektron. Mosk. in-t elektron.tekhn. (fiz.-mat.seriya) [Collection Of Scientific Works On Problems Of Microelectronics. Moscow Institute Of Electronics Technology. (Physico-Mathematical Series)], 1972, Issue 9, pp 100-108 (from RZh:Elektronika i yeye primeneniye, No 10, Oct 1972, Abstract No 10B242)

Translation: A device for measurement of impedance which uses the method of phase detection is described, and some of the measured parameters of the 4-layer structures at the section with negative resistance of the volt-ampere characteristics are presented. 4 ill. 5 ref. I.V.

1/1

- 130 -

Microelectronics

USSR

UDC 621.383.52.072.1

VARLAMOV, I.V., KALADZE, M.K., PETRUSEVICH, V.A., RZHANOV, A.YE.

"Spectral Characteristics Of Silicon Photoresistors And The Parameters Of An Optoelectronic Switch"

Sb. nauch.tr. po probl. mikroelektron. Mest. in-t elektron.tekhn.(fiz.-mat seriya)  
[Collection Of Scientific Works On Problems Of Microelectronics.Moscow Institute  
Of Electronics Technology. (Physico-Mathematical Series)], 1972, Issue 9, pp 109-114  
(from RZh:Elektronika i yeye primeneniye, No 10, Oct 1972, Abstract No 10B243)

Translation: The dependence was studied of the photo emf of a photoresistor operating in an optoelectron switch paired with a GaAs light-emitting diode. The photoresistor was produced by building up of an epitaxial layer of n-Si with a resistivity of 1 ohm.cm and a thickness of 13 micron on a p-Si wafer with a resistivity of 10 ohm.cm and a thickness of 200 micron. The upper emitter and the collector of the junction were fulfilled by planar technology with the method of diffusion of P and B. The depth of occurrence of the junctions amounted to 1.5 and 3 microns, respectively. The spectral characteristics of each p-n junction were measured at light intensities corresponding to the linear section of the lux-voltage characteristics of each junction. During illumination of the  
1/2



USSR

VARLAMOV, I.V., et al. Sb.nauch.tr. po probl.mikroelektron. Mosk.in-t elektron tekhn. (fiz.-mat. seriya), 1972, Issue 9, pp 109-114

structure by light with  $\lambda = 0.93$  micron, corresponding to the maximum of the radiation spectrum of the GaAs light-emitting diode, the process of generation of the free carriers involves the entire volume of the crystal including all three junctions; however, the maximum response of all the structure is found in the region of the shorter waves. Oscillograms were taken of the transient processes during connection of the photoresistor, and the voltage characteristics with various currents across the emitter and at various temperatures. 4 ill. 4 ref. I.V.

2/2

- 90 -

USSR

UDC 681.325.65

DUMAREVSKIY, YU. D., DUL'DIYER, V. N., and PETRUSEVICH, V. A.

"Light Beam Control Device"

USSR Authors' Certificate No 309339, Cl. G 02 f 3/00; H 01 j 3/26, filed 6 Jan 70, published 8 Sep 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 5, May 72, Abstract No 5B152P)

Translation: The device can be used for data processing in computer input and output units, in optoelectronic circuits, as well as for the construction of devices to convert electric signals to light signals. Light beam scanners are known which are made in the form of a capacitor, between whose electrodes is enclosed a layer of a substance which changes transparency under the action of an electric field: for example, a substance possessing the Franz-Keldysh effect. However, the operation of these devices requires external dc and ac voltage sources with an amplitude of  $\sim 500$  v. Despite the small size of the device itself, this results in a large system as a whole (mainly because of the size of the power sources). In addition, such devices cannot provide direct conversion of light amplitude to light beam coordinates, which process is especially important in purely optical data processing devices. To provide the capability of variation in light beam coordinates induced by the action

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USSR

DUMAREVSKIY, YU. D., et al., USSR Authors' Certificate No 309339

of a light signal, as well as to eliminate external power sources, reduce the size, and provide high reliability, it is suggested that one of the capacitor electrodes be made of a material possessing the photovoltaic effect and that it be connected to the other electrode through the photovoltage source, which is coupled with the element controlling the photovoltage amplitude. This element can be a light source of variable intensity or a negative-resistance element connected to a control source, which is illuminated in this case by a light of constant intensity.

2/2

- 37 -

USSR

UDC 621.391.63

AVTONOMOV, V. A., BORISOV, B. S., GRUDININ, A. S., VARLANOV, I. V., KANDYBA, Pe, Ye., KOLYASNIKOV, V. A., KRASYUK, B. A., MESKIN, S. S., PETRUSEVICH, V. A., POLTORATSKIY, E. A., RAVICH, V. N., and CHICHERIN, L. A.

"High-Speed Optical-Electronic Switch"

Elektron. tekhnika. Nauch.-tekhn. sb. Mikroelektronika (Electronics Technology. Scientific-Technical Collection. Microelectronics), 1971, Issue 2(28), pp 3-8 (from RZh-Elektronika i yeye primeneniye, No 8, August 1971, Abstract No 8B321)

Translation: An optical-electronic pair is developed, on the basis of which a hybrid microcircuit is produced which assures a high galvanic decoupling and is compatible with respect to the input and output parameters with integrated logic circuits manufactured by domestic industry. 4 ill. 4 ref.  
Summary.

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P  
USSR

UDC: 542.61

SHARKOV, A.I., PETRUSHA, YE.A., PERFIL'YEV, A.I., and VOYEVUESKAYA, S.V.,  
Institute of General and Inorganic Chemistry, Kiev, Academy of Sciences Ukrainian  
USSR

"Extraction of Germanium With Aniline in the Presence of a Complex Forming Agent"

Kiev, Ukrainskiy Khimicheskiy Zhurnal, Vol 36, No 4, Apr 70, pp 393-395

Abstract: Germanium was extracted with aniline as tripyrocatechuic acid. The ratio of aniline to the acid is 1:1. To diminish the loss of aniline to the aqueous phase, it was used in carbon tetrachloride solution. Germanium was reextracted with an aqueous solution of ammonium carbonate. The extraction begins to be noticeable at pH 0.1, increases rapidly to the optimal level around pH range 2.25-5.50, and then drops sharply at  $\text{pH} \geq 6$ .

1/1

USSR

UDC 547.313

PETRUSHANSKAYA, N. V., KURAPOVA, A. I., FEL'DBLYUM, V. Sh., Scientific Research Institute of Monomers for Synthetic Rubber, Yaroslavl'

"Dimerization of Olefins Under the Effect of Bis-(ethylene)-triisopropylphosphine Nickel-(0) and Ethylene-bis-(triisopropylphosphine)-nickel-(0) in Combination With Lewis Acids"

Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 3, 27 Jul 73, pp 606-607

Abstract: Compounds of nickel in conjunction with Lewis acids and tertiary phosphines form active catalytic systems for dimerization of olefins. The data in the literature relate to  $\pi$ -allyl complexes of nickel or to complex systems of the Ziegler type. It has been hypothesized that in any system catalysis takes place through an olefin coordination stage with the formation of intermediate  $\pi$ -complexes of nickel. The research described in this paper is an attempt to confirm this hypothesis. It was found that individual complexes of nickel(0) containing ethylene and triisopropylphosphine as ligands are not active in dimerization, but with the addition of a Lewis acid oligomerization of the coordinated ethylene occurs and an active catalytic system of olefin dimerization is formed. The results of the research give direct confirmation of the importance of  $\pi$ -complexes of nickel in reactions of catalytic dimerization of olefins.

1/1

- 39 -

I/2 020 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--CODIMERIZATION OF ETHYLENE WITH PROPYLENE UNDER THE INFLUENCE OF  
ZIEGLER CATALYTIC SYSTEMS -U-  
AUTHOR--(03)-FELDBLYUM, V.SH., LESHCHEVA, A.I., PETRUSHANSKAYA, N.V.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. ORG. KHIM. 1970, 6(5), 1113-14  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ETHYLENE, PROPYLENE, COPOLYMERIZATION, DIMERIZATION, CATALYST,  
ALUMINUM CHLORIDE, ORGANOALUMINUM COMPOUND, ISOPRENE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3006/1277 STEP NO--UR/0366/70/006/005/1113/1114  
CIRC ACCESSION NO--AP0134951  
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134951

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PASSAGE OF 1.1 ETHYLENE  
PROPYLENE MIXT. AT 25DEGREES THROUGH A SOLN. CONTG. ISO-BU SUB2 ALCL, NI  
OLEATE, AND PH SUB3 P OR ISO-PR SUB3 IN PHME GAVE 43.0-4.8PERCENT C SUB5  
HYDROCARBONS CONTG. 60.9-89.5PERCENT METHYLBUTENES. THE METHOD MAY BE  
OF INDUSTRIAL USE FOR THE PREPN. OF ISOPRENE. WHEN THE CATALYST SOLN.  
CONTAINED ONLY ISO-BU SUB2 ALCL AND NI OLEATE, THE MAIN C SUB5 FRACTION  
CONSTITUENTS WERE N PENTENES. FACILITY: NAUCH.-ISSLED. INST.  
MONOMER. SIN. KAUCH., YAROSLAVL, USSR.

UNCLASSIFIED



USSR

UDC 632.954.58.03

VOYEVODIN, A. V., and PETRUSHENKO, V. V., All-Union Institute of Plant Protection, Leningrad, All-Union Academy of Agricultural Sciences imeni V. I. Lenin

"The Effect of Some Herbicides on the Bioelectric Activity of the Plant Cell"

Moscow, *Khimiya v Sel'skom Khozyaystve*, Vol 8, No 5, May 70, pp 46-51

Abstract: Changes in the rest potential of cells of *Nitella flexilis*, under the effect of the herbicides diuron (N-3,4-dichlorophenyl-N',-N'-dimethylurea), atrazine, dalapon, 2,4-D, and IFK (isopropyl-N-phenylcarbamate) were studied. The cells of *N. flexilis* resemble those of the parenchyma of higher plants. The bioelectric potential of isolated cells was measured by using microelectrodes. All herbicides applied reduced the rest potential independently of the presence or absence of light, with the exception of diuron. Diuron inhibited the TS (transition of cells from normal dark to normal light state) reaction and acted similarly to the elimination of light both at the moment of hyperpolarization and in the state of the cell induced by light. Under the action of diuron, the photolysis of  $H_2O$  was

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USSR

VOYEVODIN, A. V., et al, Khimiya v Sel'skom Khozyaystve, Vol 8,  
No 5, May 70, pp 46-51

apparently inhibited. This was followed by stoppage of photosynthetic assimilation of  $\text{CO}_2$  and cessation of the light-induced passive transfer of  $\text{HCO}_3^-$  ions through the cell membrane. The changes in the rest potential produced by 2,4-D could be ascribed to disturbances in oxidative phosphorylation that developed under the action of this substance. The changes in the rest potential under the action of the herbicides were highly specific. On the basis of the results obtained, the method that was applied is well suited for determining the nature of the action of herbicides in the initial period of their contact with plant cells.

2/2

- 102 -

USSR

UDC 681.325.5

ZAKHARCHENKO, O. YE., KOCHUR, A. P., PETRUSHENKO, YE. I., and FORMOZOV, B. N.

"Cryotron Adder"

USSR Authors' Certificate No 306461, Cl. G06 f 7/50, filed 29 Sep 69,  
published 7 Sep 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya  
Tekhnika, No 5, May 72, Abstract No 5B243P)

Translation: Cryotron adders are well known. However, they are not economical in terms of energy consumption (use of direct current sources) they contain a large number of current-conducting buses which are a source of undesirable heat, and they have complex control and synchronization involving the need to combine two-line control to be applied to reset-logic circuits. The proposed adder is unique in that in it the production circuit is four logic elements of the NOT-OR and NOT-AND type, one of which controls the other; the carry generating circuit contains two logic elements -- NOT-OR-AND and NOT and each logic element takes the form of a superconducting self-excited storage loop. This makes it possible to simplify the control, reduce the number of current-conducting buses, and make the device more economical. The favorable effect is achieved by a circuit using an all one-line control according to an input variable; this does not require a special adjusting signal, and the feed requires a pulse current rather than direct current. Undamped current induced in the device itself is used to store and maintain the state of the cryotron adder.

1/1

USSR

UDC 541.123:28

LEVIN, YE. S., KOSTINA, T. K., PETRUSHEVSKIY, M. S., GEL'D, P. V., and KUROCHKIN, K. T., Ural Polytechnic Institute

"Solubility of Hydrogen in Liquid Alloys of Cobalt and Aluminum"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya No 1, 1973, pp 31-36

Abstract: The solubility of hydrogen was studied as a function of the composition of Co-Al alloys ( $0 \leq x_{Al} \leq 1$ ) and temperature (1300-1700°C). The solubility percentage was determined from the hydrogen pressure in a closed system, with a determination error of  $\pm 5.5\%$ . The solubility of hydrogen in Co-Al alloys obeys the square root rule:  $\sqrt{[H]} = K \sqrt{P_{H_2}}$ , where  $\sqrt{[H]}$  is the hydrogen concentration in alloy, weight percentage;  $P_{H_2}$  is the hydrogen pressure in gaseous phase, bar; and K is the hydrogen solubility in alloy (weight percentage/bar<sup>1/2</sup>) which is numerically equal to its solubility in metal at  $P_{H_2} = 1$  bar. The solubility process of hydrogen is accompanied by dissociation of H molecules into atoms (ions), and it changes according to the extremum rule with a minimum at 50-60 at% Al. The solubility process is of an endothermal nature and its dependence on temperature is described by  $\log K = A/T + B$ , where A and B are coefficients which depend only on 1/3

USSR

LEVIN, YE. S., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 1, 1973, pp 31-36

alloy composition. Enthalpy and entropy of the solubility of atomic hydrogen in Co-Al alloys, coefficients of hydrogen activity, and interaction parameters of dissolved hydrogen indicate that the solubility of hydrogen in these alloys is determined by the structure of a shortrange order and by the presence of microgroups in a melt of changeable composition ( $\text{Co}_x\text{Al}_y$  type). The solubility of hydrogen in Co-Al alloys also depends on Co and Al atoms which do not take part in the formation of localized bonds between Co and Al. The concentration and nature of the solvent atoms which do not participate in the formation of quasi-molecular  $\text{Co}_x\text{Al}_y$  complexes plays an important role in determining the solubility percentage of hydrogen in Co-Al alloys. The solubility of hydrogen at 1535, 1530, and 1630°C in the presence of  $x_{\text{Al}} \leq 0.6$  is respectively,

$$x_{\text{H}, 1535^\circ\text{C}}^{\text{Co, Al}} = 0.00058 + 0.002056(x_{\text{Al}} - 0.6)^2$$

$$x_{\text{H}, 1580^\circ\text{C}}^{\text{Co, Al}} = 0.00069 + 0.001889(x_{\text{Al}} - 0.6)^2$$

2/3

- 74 -

USSR

LEVIN, YE. S., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 1, 1973, pp 31-36

$$x_{H, 1630^{\circ}C}^{Co, Al} = 0.00076 + 0.001833(x_{Al} - 0.6)^2.$$

When  $x_{Al} \geq 0.6$  the hydrogen solubility at the same temperatures is:

$$x_{H, 1535^{\circ}C}^{Co, Al} = 0.00058 + 0.004938(x_{Al} - 0.6)^2$$

$$x_{H, 1580^{\circ}C}^{Co, Al} = 0.00069 + 0.005312(x_{Al} - 0.6)^2$$

$$x_{H, 1630^{\circ}C}^{Co, Al} = 0.00076 + 0.006125(x_{Al} - 0.6)^2.$$

3/3

USSR

UDC: [669.15'24/.25+669.245'26]:532.74

PETRUSHEVSKIY, M. S., GEL'D, P. V. , Ural Polytechnic Institute

"Estimation of the Structural Characteristics of Fe-Co, Fe-Ni and Co-Ni Liquid Alloys"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 12, 1973, pp 11-15.

Abstract: According to the microheterogeneous (cybotaxic) structural model of binary solutions, they consist of microgroupings with predominant bonding between unlike and like atoms. Upon transition from dilute solutions to concentrated solutions, the interaction between unlike atoms is reinforced, causing a reduction in the concentration of pores (holes) and therefore a decrease in the volume (compression) upon formation of alloys. At the same time, the mean coordination number of the melt changes. This article studies a method of estimation of the concentration of pores, the coordination number and the mean interatomic distance within the limits of the first coordination sphere. The method utilizes data on the energies of the interatomic interaction and the molar volumes of the liquid alloys. The structural characteristics and molar volumes of liquid alloys of iron with cobalt and cobalt with nickel are calculated at 1600° C. The pore concentration at molar

1/2

USSR

Petrushevskiy, M. S., Gel'd, P. V., Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 12, 1973, pp 11-15.

volumes for Fe-Co and Fe-Ni alloys are lower than their additive values. For Co-Ni alloys, these characteristics follow the additive rule.

2/2

- 72 -



Physical Properties

USSR

UDC 669.168

GEL'D, P. V., BAUM, B. A., and PETRUSHEVSKIY, M. S.

Rasplavy Ferrosplavnogo Proizvodstva (Melts of the Ferro-Alloy Industry),  
Moscow, Metallurgiya, 1973, 288 pp

Translation of Annotation: Alloys of 3d transitional metals with silicon and carbon play an important role in metallurgy. Among these alloys are the following: ferrochromium, ferromanganese, ferrosilicon, silicochromium, silicomanganese, ferrosilicochromium, ferrosilicomanganese, and many other ferroalloys and master alloys. Steels with special properties (heat-resistant, wear-resistant, and others) are also related to these groups of alloys. These alloys can be refined further from impurities and used at high temperatures in a liquid state. Therefore, study of the metallurgical problems of these alloys in a liquid state is of prime importance. Since these alloys are produced in electric furnaces, it is necessary to know their electrical resistance properties in order to calculate the furnace parameters and devices for electromagnetic mixing and transportation of metal, to define their heat balance, etc. The basic reactions in these alloys take place at the interface of liquid metal and gaseous or slag phases. Therefore, the kinetics of these reactions depends to a great extent on the surface concentration of reacting substances which is calculated from the surface tension of liquid alloys. The mass transfer

1/7

USSR

GEL'D, P. V., et al, Rasplavy Ferrosplavnogo Proizvodstva (Melts of the Ferro-Alloy Industry), Moscow, Metallurgiya, 1973, 288 pp

rate is determined very often from viscosity and from the melt density in the case of the sinking of the drop. These properties regulate many characteristics of metallurgical processes, such as enlargement of particles, flotation of non-metallic inclusions, and many others. Knowledge regarding actual concentration and solubility of hydrogen in ferro-alloys, their emissivity, and other properties is also of importance. The nature of the interparticle interactions in melts is one of the fundamental characteristics of these alloys. All of this information is necessary for establishing the molecular kinetics nature of the alloys, the mechanisms of processes during their preparation, the crystallization kinetics of melts, and the complex genetic interactions taking place between solid and liquid phases in order to be able to control the structure of ingots. Thus, information regarding the interparticle interactions and structure of melts is necessary for defining the micro- and macroscopic characteristics of metallurgical processes, and to produce a better quality product. The main aims of the authors in writing this book were:

- (1) Compilation of data regarding the properties of the mentioned alloys;
- (2) Discussing the features of the interparticle interactions and structure of these alloys, using for this purpose physicochemical analysis methods, as well

2/7

- 31 -

USSR

GEL'D, P. V., et al, Rasplavy Ferrosplavnogo Proizvodstva (Melts of the Ferro-Alloy Industry), Moscow, Metallurgiya, 1973, 288 pp

as utilizing information borrowed from related subjects (the theory of chemical bonds, physics of metals, molecular physics, and others); (3) Evaluation of methods and computational results regarding the thermodynamic characteristics of silicon and carbon melts.

TABLE OF CONTENTS

|   |    |
|---|----|
| Introduction  | 3  |
| Chapter 1. Liquid State of Metals   |    |
| Development of the Theory of Liquids  | 5  |
| Models of Liquids   | 8  |
| The Nature of Thermal Motion of Melt Particles  | 11 |
| The Role of Interatomic Interaction in the Formation of Structure and Properties of Liquid Metals | 14 |
| Covalent and Metal Bonds  | 16 |
| Structural and Physicochemical Properties of Liquid Metal Alloys                                  | 18 |
| Properties and Structure of Liquid Solutions of 3d Transitional Metals                            | 29 |

3/7

USSR

GEL'D, P. V., et al, Rasplavy Ferrosplavnogo Proizvodstva (Melts of the Ferro-Alloy Industry), Moscow, Metallurgiya, 1973, 288 pp

|   |     |
|---|-----|
| Chapter 2. Properties and Structure of Silicon Melts  |     |
| Structure of Liquid and Amorphous Silicides According to X-ray and Electronographic Studies     | 51  |
| Results of X-ray Studies of Molten Iron Silicides   | 60  |
| Results of Electronographic Studies of Amorphous Phases of Silicon, Chromium, and its Silicides | 72  |
| Properties and Structure of Liquid Chromium Alloys with Silicon                                 | 80  |
| Electrical Conductivity   | 80  |
| Viscosity   | 85  |
| Density and Surface Tension   | 89  |
| Solubility of Hydrogen  | 93  |
| Properties and Structure of Mn - Si Melts   | 101 |
| Electrical Resistance   | 103 |
| Viscosity   | 106 |
| Density and Surface Tension   | 109 |
| Hydrogen Solubility   | 113 |

4/7

USSR

GEL'D, P. V., et al, Rasplavy Ferrosplavnogo Proizvodstva (Melts of the Ferro-Alloy Industry), Moscow, Metallurgiya, 1973, 288 pp

|  |     |
|--|-----|
| Properties and Structure of Fe - Si Melts  | 115 |
| Electrical Resistance  | 116 |
| Viscosity  | 119 |
| Density and Surface Tension  | 122 |
| Solubility of Hydrogen and Deuterium   | 126 |
| Emissivity   | 130 |
| Properties and Structure of Co-Si and Ni-Si Melts and Cer-<br>tain Polycomponent Systems | 136 |
| Cobalt Alloys with Silicon   | 136 |
| Nickel Alloys with Silicon   | 141 |
| Polycomponent Silicon Melts  | 146 |
| Chapter 3. Properties and Structure of Carbonic Melts                                    |     |
| Liquid Alloys of Chromium and Iron with Carbon   | 149 |
| Electrical Resistance  | 149 |
| Viscosity  | 152 |
| Density and Surface Tension  | 160 |
| Liquid Alloys of Mn - C and Mn - Fe - C Systems  | 166 |
| Electrical Resistance  | 167 |

5/7

USSR

GEL'D, P. V., et al, Rasplavy Ferrosplavnogo Proizvodstva (Melts of the Ferro-Alloy Industry), Moscow, Metallurgiya, 1973, 288 pp

|   |     |
|---|-----|
| Viscosity   | 171 |
| Density and Surface Tension   | 175 |
| Chapter 4. Thermodynamics of Liquid Ferro-Alloys  |     |
| Thermodynamic Characteristics of Alloys of 3d Transitional Metals with Silicon and Carbon | 177 |
| Properties of Me - Si Melts   | 177 |
| Properties of Me - C Melts  | 191 |
| Computing Methods of Thermodynamic Characteristics of Melts                               | 211 |
| Ideal and Nonideal Solutions  | 212 |
| Regular Solutions   | 216 |
| Subregular Solutions  | 217 |
| Short-Range Order in Liquid Alloys  | 219 |
| Symmetrical Variant of the Quasi-chemical Theory  | 220 |
| Asymmetrical Variant of the Quasi-chemical Theory   | 223 |
| Taking Into Account the Temperature Dependence of the Energy Interaction                  | 225 |
| The Cluster Theory of Solutions   | 226 |
| Considering the Concentrational Dependence of the Energy of Interatomic Interactions      | 227 |

6/7

- 33 -

USSR

GEL'D, P. V., et al, Rasplavy Ferrosplavnogo Proizvodstva (Melts of the Ferro-Alloy Industry), Moscow, Metallurgiya, 1973, 288 pp

|  |     |
|--|-----|
| Computing the Thermodynamic Characteristics of Me - Si and Me - C Melts        | 233 |
| Binary Liquid Me - Si Alloys   | 233 |
| Liquid Fe - Si Alloys  | 233 |
| Co - Si and Ni - Si Alloys   | 241 |
| Carbon Solubility in Liquid Metal Alloys and in Alloys of Metal with Silicon   | 246 |
| Solubility of Carbon in Metal Melts with Ideal Ordering                        | 247 |
| Solubility of Carbon in Liquid Alloys of Iron and Manganese with Silicon       | 250 |
| Solubility of Carbon in Fe-Mn-Si-C and Fe-Cr-Si-C Melts                        | 255 |
| Solubility of Hydrogen in Liquid Alloys of 3d Transitional Metals with Silicon | 258 |
| Conclusion   | 268 |
| Bibliography   | 270 |

7/7

USSR

UDC 669.25'71:536.722

PETRUSHEVSKIY, M. S., YESIN, Yu. O., GEL'D, P. V., and SANDAKOV, V. M.

"Effect of Short-Range Order on the Heats of Mixing of Cobalt Melts With Aluminum"

Ordzhonikidze, Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, No 2, 1972, pp 21-25

Abstract: According to earlier research by the same authors, cobalt melts with aluminum represent a system with strong interaction between the particles of dissimilar components which does not follow the regularities of the theory of regular solutions. The thermodynamic characteristics of such alloys can be described only by taking into account the effect of the short range order. This study used this approach to estimate the interatomic interaction energies in molten Co-Al alloys, calculate their heats of mixing at 1670°C, and to provide information on the temperature-concentration dependences of their kinematic viscosity and density. (3 illustrations, 6 bibliographic references). [Ural Polytechnic Institute, Department of Physics]

1/1

40



USSR

UDC 669.15'24-154:534:536.7

PETRUSHEVSKIY, M. S., and GEL'D, P. V., Ural Polytechnic Institute

"Calculation of the Thermodynamic Properties of Liquid Fe-Ni Alloys"

Moscow, IVUZ. Chernaya Metallurgiya, No 12, Dec 72, pp 72-75

Abstract: The effect of short-range order on the thermodynamic properties of liquid binary systems with minute deviations from the law of ideal solutions is considered. The parameters of short-range order, the temperature of blending, and the activity of components are obtained for liquid Fe-Ni alloys at 1600°C. The calculated results coincide with the conclusions of the theory of subregular solutions and the experimental data. Three figures, 11 bibliographic references.

1/1

USSR

UDC 621.317.7.029.65/66-5

VERTIN, A. A., PETRUSHIN, A. A., SUSLOV, N. N., SHESTOPALOV, V. P., KOLOSOV, S. S., LEONOV, Yu. I., and LITVINENKO, I. N.

"Automation of Experimental Research in the Millimeter and Sub-millimeter Wavelength Ranges"

Novosibirsk, V sb. Konf. po avtomatiz. nauch. issled. na osnove primeneniya ETsVM, 1972 (Conference on Automation of Scientific Research Using the Electronic Digital Computer, 1972--collection of works) 1972, pp 100-101 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A515)

Translation: The proposed research method is based on the visualization of the field distribution in open structures (resonators, for example) by introducing into their space a test body which, entering a region of greater or lesser intensity in its motion along a specified trajectory, varies to some extent the parameters of the structures. The trajectory of the test body is traced by a beam on the screen of a cathode-ray tube. The brightness of the beam is proportional to the signal taken from the open structure.

A. K.

1/1

- 144 -

USSR

UDO 621.317.75.029.64(088.8)

PETRUSHIN, A.A., BALAKLITSKIY, I.M., SHESTOPALOV, V.P.

"Device For Visual Representation Of The Electromagnetic Field In Open Resonators"

USSR Author's Certificate No 286004, filed 6 Jan 69, published 4 June 71 (from RZh:Radiotekhnika, No 2, Feb 72, Abstract No 2A285P)

Translation: The patented device for visual representation of the electromagnetic fields in open resonators contains a microwave generator, a detector, amplifier, oscilloscope, and a mechanism for movement of the test body provided with potentiometric pickups for movement in two mutually perpendicular directions. With the object of decreasing the time for visual representation, the output of the amplifier is connected to the brightness modulator of the oscilloscope and the potentiometric pickups are connected to the deflecting system of the oscilloscope. The device makes it possible to obtain an actual visual pattern of the distribution of the fields in open resonators, and precisely to distinguish the type of oscillations and to perceive the arrangement and form of the field spot. It is possible to conduct observations in resonators with mirrors of an arbitrary geometrical configuration with the presence in the cavity of any nonuniformities. It is also possible to determine the effect of methods of excitation of the resonators on the pattern of the field. A.K.

1/1

USSR

UDC: 621.317.799

PETRUSHIN, A. A., BALAKLITSKIY, I. M., SHESTOPALOV, V. P.

"A Device for Visualizing an Electromagnetic Field in Open Resonators"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obrazttsy, Tovarnyye Znaki, No 34, 1970, Soviet Patent No 286004, Class 21, filed 6 Jan 69, p 43

Abstract: This Author's Certificate introduces a device for visualizing the electromagnetic field in open resonators. The device contains an SHF oscillator, detector, amplifier, oscillograph and probe-manipulating mechanism equipped with potentiometric displacement indicators for two mutually perpendicular directions. As a distinguishing feature of the patent, the time for visualization is reduced by connecting the output of the amplifier to the brightness modulator of the oscillograph, and connecting the potentiometric indicators to the deflecting system of the oscillograph.

1/1

1/2 031 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--ASSEMBLY FOR STUDYING ELECTROMAGNETIC FIELDS IN OPEN RESONATORS IN  
THE MILLIMETER RANGE -U-  
AUTHOR-(03)-PETRUSHIN, A.A., BALAKLITSKIY, I.M., SHESTOPALOV, V.P.  
COUNTRY OF INFO--USSR  
SOURCE--PRIORY I TEKHNIKA EKSPERIMENTA, MAR.-APR. 1970, P. 147-149  
DATE PUBLISHED--APR70  
SUBJECT AREAS--PHYSICS, METHODS AND EQUIPMENT  
TOPIC TAGS--QUARTZ, TEST METHOD, ELECTROMAGNETIC FIELD, MAGNETIC  
RESONANCE, GRAPHITE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3005/1418 STEP NO--UR/0120/70/000/000/1047/0149  
CIRC ACCESSION NO--AP0133370

UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0133370

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF AN ASSEMBLY FOR OBTAINING A VISIBLE IMAGE OF THE FIELD DISTRIBUTION IN OPEN RESONATORS IN THE MILLIMETER AND SUBMILLIMETER WAVELENGTH RANGE. ESSENTIAL IN THIS ASSEMBLY IN THE Q FACTOR MODIFICATION CAUSED BY DIFFRACTION EFFECTS WHEN A 0.3 TO 0.6 MM POROUS GRAPHITE SPHERE FIXED ON A QUARTZ THREAD IS MOVED IN A PLANE PERPENDICULAR TO THE RESONATOR AXIS. THE DETERMINATION OF THE OSCILLATION MODES AND FIELD DISTRIBUTION IN OPEN RESONATORS WITH ANY MIRROR GEOMETRY IS FACILITATED BY THIS TECHNIQUE. FACILITY: AKADEMIIA NAUK UKRAINSKOI SSR, INSTITUT RADIOFIZIKI I ELEKTRONIKI, KHARKOV, UKRAINIAN SSR.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--EXPERIMENTAL STUDY OF OPEN RESONATORS WITH REFLECTIVE DIFFRACTION  
GRATES. I -U-  
AUTHOR--(04)-BALAKLITSKIY, I.M., PETRUSHIN, A.A., TRETYAKOV, O.A.,  
SHESTOPALOV, V.P.  
COUNTRY OF INFO--USSR  
SOURCE--UKRAYIN. FIZ. ZH. (USSR), VOL. 15, NO. 5, P. 724-38 (MAY 1970)  
DATE PUBLISHED----MAY70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--OPEN RESONATOR, OPTIC MIRROR, DIFFRACTION GRATING, HARMONIC  
OSCILLATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3005/1808 STEP NO--UR/0185/70/015/005/0724/0738  
CIRC ACCESSION NO--AP0133713

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133713

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEMI SPHERIC OPEN RESONATORS (OR) WITH A FLAT MIRROR COVERED PARTIALLY BY A REFLECTIVE DIFFRACTION GRATE WERE STUDIED EXPERIMENTALLY. SPECTRA AND FIELD DISTRIBUTIONS OF NATURAL OSCILLATIONS WERE EXAMINED IN DEPENDENCE ON THE DISTANCE BETWEEN THE MIRRORS FOR VARIOUS GRATE PARAMETERS. SIMILAR DEPENDENCES OBTAINED WHEN INVESTIGATING BOTH A CONVENTIONAL HEMI SPHERIC OR AND THAT WITH A FLAT MIRROR COMPLETELY COVERED BY A REFLECTIVE DIFFRACTION GRATE ARE PRESENTED FOR COMPARISON. THE SPECTRUM AND FIELD DISTRIBUTIONS OF NATURAL OSCILLATIONS OF OR WITH A TROUGH SHAPED ROUND APERTURE MIRROR INSTEAD OF A SPHERIC ONE ARE CONSIDERED.

UNCLASSIFIED



USSR

UDC 621.793.1

KOLTUNOVA, L. N., PETRUSHIN, A. P., and ROYKH, I. L., Odessa Technological Institute of the Food Industry

"Protection of Aluminum Alloys From Atmospheric Corrosion by Vacuum Chromium Coatings"

Moscow, Zashchita Metallov, Vol 9, No 1, Jan-Feb 73, pp 72-74

Abstract: The protective-decorative properties of vacuum chromium coatings on the AL2 alloy were investigated under atmospheric conditions. Sufficiently compact and plastic coatings, well coherent with the base, were produced. Corrosion tests of coatings conducted in chambers of tropical climate and sea fog showed that the vacuum chromated AL2 alloy with a 20  $\mu$ m-thick coating after 10 hrs testing in sea fog remained unchanged. Tests under industrial conditions revealed that on a 10  $\mu$ m-thick coating dull point areas of pitting corrosion developed, but the 20-  $\mu$ m-thick coating deposited by evaporation in vacuum retained the initial decorative appearance even after tests of six months' duration. One figure, one table, two bibliographic references,

1/1

USSR

UDC 620.192.4

KOLTUNOVA, L. N., PETRUSHIN, A. P., RADUTSKIY, M. A., ROYKH, I. L., Odessa Technological Institute imeni M. V. Lomonosov

"Comparative Study of the Physicomechanical Properties of Galvanic and Vacuum Chrome Coatings on AL2 Aluminum Alloy"

Moscow, Avtomobil'naya promyshlennost', No. 9, Sep 71, pp 33-34

Abstract: The structure and properties of galvanic and vacuum chrome coatings on AL2 Silumin are compared. Optimal chrome-plating regimes were selected. The galvanic chrome coating was applied from a standard electrolyte (150 g/l  $\text{CrO}_3$ , 3 g/l  $\text{H}_2\text{SO}_4$ ) at 48-52°C and a current density of 36-46 amp/in<sup>2</sup>. The rate of application of the chrome coating under this regime was 0.3-0.4 μ/min. The vacuum chrome coating was produced with an electron-beam evaporator with a power of 7-8 kw which formed a band electron beam; this beam was directed with the aid of an appropriate deflecting electromagnetic system onto a crucible with evaporated chrome. The optimal regime for vacuum chrome-plating of AL2 Silumin was: surface temperature of Silumin before initial condensation of chrome vapors 325-350°C, vacuum ahead of initial evaporation of at least  $1 \cdot 10^{-4}$  mm Hg, chrome-plated Silumin temperature of 50-70°C when the air enters the vacuum

1/2

KOLTUNOVA, L. N., et al, *Avtomobil'naya promyshlennost'*, No. 9, Sep 71, pp 33-34

chamber. The structures of the vacuum and galvanic chrome coatings were investigated by x-ray and metallographic methods and it was found that the average grain size of galvanic chrome was  $0.1-0.2 \mu$  and of vacuum chrome was  $0.02 \mu$ , indicating the vacuum coating was more finely dispersed than the galvanic. The vacuum coating had excellent adhesion to the base, was plastic and did not crack even under transverse polishing. The galvanic coating was brittle and the adhesion was poor at some places. The microhardness of the galvanic chrome on Silumin at a load of 20 g was  $450-500 \text{ kg/mm}^2$  and that of the vacuum chrome was  $500-530 \text{ kg/mm}^2$ . Wear tests showed that for a thickness of less than  $10 \mu$  the vacuum chrome coatings have higher protective properties as compared with galvanic coatings both under humid atmospheric conditions and under complete immersion in a 3% solution of NaCl. This difference decreases for thicker coatings and for a thickness of more than  $20 \mu$  the protective properties of vacuum and galvanic chrome coatings on AL2 Silumin are the same.

2/2

- 69 -

1/2 024 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--PECULIARITIES OF WELDING THE MULTILAYER SYLPHONS OF AUSTENITE AND  
CHROMIUM NICKEL STEELS AND ALLOYS -U-  
AUTHOR-(02)-PETRUSHIN, I.V., MINAKOV, I.T.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, SVAROCHNOYE PROIZVODSTVO, NO 1, 70, PP 18-19

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--METAL SYLPHON, METAL BELLWS, CHROMIUM NICKEL STEEL, CHEMIUM  
NICKEL ALLOY, BIBLIOGRAPHY, ELECTRON BEAM WELDING, INTERGRANULAR  
CORROSION, PERMEABILITY, INERT GAS ARC WELDING, BIMETAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1996/2028

STEP NO--UR/0135/70/000/001/0018/0019

CIRC ACCESSION NO--AP0118982

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118982

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROCEDURE AND REGIMES ARE DESCRIBED OF THE ARGON SHIELDED ARC AND ELECTRON RAY WELDING OF SYLPHONS FABRICATED FROM CHROMIUM NICKEL STEELS AND ALLOYS, AT WHICH THE JOINTS SATISFY THE REQUIREMENTS WITH RESPECT TO THE IMPERMEABILITY AND INTERCRYSTALLINE CORROSION.

UNCLASSIFIED

USSR

UDC 621.791.7.162-762.65:669.15-194.56

~~PETRUSHIN, I. V.~~, Engineer, MINAKOV, I. T., Candidate of Technical Sciences

"Multilayered Sylphon Bellows Made of Austenitic Chromium-Nickel Steels and Alloys"

Moscow, Svarochnoye Proizvodstvo, No 1, Jan 70, pp 18-19

Abstract: Sylphon bellows made of OKh18N10T steel are presently welded by an automatic TIG method. The resulting welds are solid, without cracks, pores, and other defects. An attempt was made to use the same method for welding sylphon bellows made of high-nickel alloys. However, it was found that the bellows had cracks up to 1 mm long. A study was made to find a way of preventing the formation of cracks. One of the most successful ways of preventing crack formation is welding of the bellows with an electron-beam welder, and preheating the bellows prior to welding. Also, to eliminate all the traces of dirt and grease, it is recommended that the bellow elements be cleaned, prior to welding, with alcohol with subsequent annealing in a vacuum furnace at 1/2

USSR

PETRUSHIN, I. V., et al., Svarochnoye Proizvodstvo, No 1, Jan 70,  
pp 18-19

400°C for 30 min. The tests of electron-beam welded bellows  
revealed that the welds were free of cracks and satisfied the  
intergranular corrosion requirements in accordance with GOST  
6032-58.

2/2

- 87 -

USSR

UDC 669.017:539.4+669.27/29

SAVITSKIY, YE. M., TYLKINA, M. A., KONIYEVA, L. Z.,  
LOGUNOV, A. V., and PETRUSHIN, N. V., Institute of Metallurgy  
imeni A. A. Baykov

"Investigation of Carbon Solubility in Mo+45%Re Alloy"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy,  
Tsvetnaya Metallurgiya, No 6, 1973, pp 125-129

Abstract: The solubility of C in the Mo+45%Re alloy was investigated by measuring the electric resistance. The derived experimental data show that the solubility of C in the Mo+45%Re alloy comprises 0.035% at 1550° and that it comes up to 0.05% at 1800°. In the presence of 45%Re, the solubility of C in Mo rises 25% at 1800° and 75% at 1550°. The presence of 0.035%C in the solid solution increases the electric resistance  $\rho$  of the alloy by  $7.5 \mu\Omega \cdot \text{cm}$ ; the presence of carbides in the alloy at a C content up to 0.265% has no noticeable influence on the level of its  $\rho$ . The temperature coefficient of  $\rho$  of Mo+45%Re alloy can be considered nearly constant and equal to  $2.9 \cdot 10^{-3} \mu\Omega \cdot \text{cm} \cdot \text{deg}^{-1}$ ; it decreases at transition into the 0.035%C solid solution. The  $\rho$ -curve of the Mo+45%Re+0.4%C alloy shows a break at 1250-1260°. Three figures, one table, 11 bibliographic references.

1/1



Microbiology

USSR

UDC 616.981.25-078.775

PETRUSHINA, L. I. , Institute of Nutrition, USSR Academy of Medical Sciences

"The Need for Using Phages of Animal Origin in Typing Human Staphylococcal Intoxications"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1973, pp 51-54

Abstract: Both an international collection of "human" staphylococcal bacteriophages and a set of phages derived from animal sources were employed in typing 459 coagulase-positive Staphylococci isolated from dairy products and 18 isolates from cases of food poisoning. The results showed that a much greater percentage of the Staphylococci were lysed by phages obtained from animal Staphylococci than those derived from human sources. Since many disease of man are caused by bacteria derived from animals, the use of bacteriophages obtained from the latter strains extends the epidemiologic usefulness of phage typing.

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1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--STAPHYLOCOCCUS ANIMAL PHAGES AND COMPARATIVE STUDY OF THEIR LYTIC  
PROPERTIES -U-  
AUTHOR--PETRUSHINA, L.I.  
COUNTRY OF INFO--USSR, UNITED KINGDOM  
SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 6,  
PP 115-119  
DATE PUBLISHED--70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--STAPHYLOCOCCUS, PHAGE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3001/0822 STEP NO--UR/0016/70/000/006/0015/0119  
CIRC ACCESSION NO--AP0126499  
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0126499

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR CARRIED OUT A COMPARATIVE STUDY OF THE LYTIC PROPERTIES OF FOUR STAPHYLOCOCCUS ANIMAL PHAGES ISOLATED AT THE INSTITUTE OF NUTRITION OF THE USSR AMS AND OF SOME PHAGES FROM THE TEMPORARY SET OBTAINED FROM ENGLAND. THE PHAGES UNDER STUDY PROVED TO BE SIMILAR BY LYTIC ACTIVITY, BUT NO IDENTICAL. FACILITY: INSTITUT PITANIYA AMN SSSR, MOSKVA.

UNCLASSIFIED

USSR

UDC 577.1.615.7/9

IYEVLEVA, YA. A., PETRUSHINA, V. I., and YUSHCHENKO, V. A.

"The Effect of Alkyl Sulfates on Skin"

Neftepererabotka i Neftekhimiya. Ref. Sb. (Petroleum Refining and Petroleum Chemistry. Collection of Reports), No 3, 1972, pp 53-54 (from Referativnyy Zhurnal -- Biologicheskaya Khimiya, Otdel'nyy Vypusk, No 19, 1972, Abstract No 19F2031 by L. A. Shavarina)

Translation: The skin irritation threshold (SIT) for six commercial alkyl sulfates of fatty acids (AFA) was established in experiments on guinea pigs. The AFA are used for the production of shampoos. A dependence was established between the SIT of AFA on the composition of starting alcohols. SIT of imported preparations "Empicol" and "Saktipon" prepared from alcohols of identical composition (fraction  $C_{12} - C_{14}$ ) amounted to 4% of FAV in aqueous solution. The SIT increased to 8-12% when the triethylamine salt of the alkyl sulfate fraction  $C_{16} - C_{18}$  and 30% high-molecular hydrocarbons  $C_{16} - C_{18}$  were used (domestic products). The SIT of the alkyl sulfate salt of  $C_{10} - C_{13}$  fraction was 7%, while SIT of the triethylamine salt was only 5% compared

1/2